

# DuraCOR 810-Duo

## MIL-COTS Rugged Vehicle Mission Computer Platform w/Intel Core2Duo

- 1.5GHz Intel Core 2 Duo Processor
- Solid State Media, MIL-STD Power Supply
- MIL-STD-704F & 1275D Transient Protection
- SATA, IDE, Removable Media Support
- Dual Ethernet, Video, Serial, and 6x USB
- Internal PC104 Card Cage with 6 Spare Slots
- Designed to MIL-STD-810G & 461E, including Extreme Shock & Vibration Testing for Jet, Helo, Tracked and Wheeled Vehicle Profiles
- Conduction Cooled Chassis w/ MIL Connectors
- -40°C to +71°C Operating Temp



## FEATURES

### CPU:

Low-Power 1.5GHz Intel L7400 Core 2 Duo w/ 2GB RAM

### MODULAR/EXPANDABLE:

Internal PC104 Card Cage with up to 6 Spare Slots for PCI104 / PC104+ cards

### MECHANICAL:

- Chassis: Aluminum with Hardened Finish
- Connectors: MIL-C-38999 (I/O) and IP68 (Power)
- Water Proof and Water Tight
- No Moving Parts: Passive Conduction Cooled

### POWER:

- Vehicle Grade DC/DC Converter
- Voltage/Surge Protection MIL-STD-704E & MIL-STD-1275D

### CONNECTIVITY & I/O:

Gig Ethernet, Fast Ethernet, 6x USB, 2x RS-232 Serial, 1x VGA, 1x LVDS, Audio, PS/2

### OPERATING SYSTEM:

Linux / Windows Embedded OS to boot-up out of box

### STORAGE:

- Supports up to Two IDE CompactFlash and/or SATA Solid State Disks, including an external eSATA Device
- Removable CF Media Option Eases Secure Data Transfer, Declassification, Servicing, and System Software Updates

### MIL-STD-810 COMPLIANCE (Qualification Testing Pending):

Designed to meet MIL-STD-810G (Crash Safety Shock, Functional Shock, Vibration, Temperature, Humidity, Dust and Water Ingress)

### MIL-STD-461E COMPLIANCE (Qualification Testing Pending):

Designed to meet MIL-STD-461E for Radiated and Conducted Emissions and Susceptibility

### RELIABLE SIGNAL INTEGRITY:

Rugged Near Cable-Less Design Improve Signal Integrity and Reduce Customization Cycle Time for 79-pin Expansion

The DuraCOR® 810-Duo is a rugged multi-core mission processor subsystem designed for high reliability applications requiring MIL-STD-810G environmental compliance with extreme temperatures, shock/vibration, and ingress. Based on a modular, open architecture COTS design with an Intel Core2 Duo CPU, solid state disk, MIL-704/1275 power supply and conduction cooled chassis, the DuraCOR 810-Duo is an ideal computing solution for harsh mobile military and homeland security C4ISR deployments.

To ensure high reliability, signal integrity, and extended environment operation, this high-performance tactical computer comes equipped with sealed MIL-38999 connectors, integrated EMI/EMC filtering, MIL-qualified power supply, watertight conduction-cooled enclosure, aluminium railed card cage, and near cable-less design. The unit is designed to meet and will be qualified to MIL-STD-810G and MIL-STD-461E for insertion into Size, Weight, and Power (SWaP)-constrained aircraft, ground vehicle and maritime platform modernization programs.

Locking MIL circular connectors bring out Gigabit and Fast Ethernet connections, 6 USB ports, 2 RS-232 ports, Dual Video Display (LCD, VGA), Keyboard, Mouse, and Audio signals, as well as an expansion connector for up to 79 signals from optional add-on cards. Up to six expansion slots are available to support Commercial off the Shelf (COTS) PCI-104 or PC104-Plus modules.

To enable rapid deployment, an industrial-grade CompactFlash (CF) Solid State Disk (SSD) comes ready to boot with Linux or Windows Embedded. Up to Two CF and one SATA interfaces are supported internally without occupying card slots, as well as an external eSATA interface for rugged external storage device. An optional removable media slot eases secure data transfer, declassification, servicing, system software updates or storage capacity upgrades.

Professional services are available from Parvus to deliver semi-custom versions of this product, including mechanical changes and integrated application-specific PC104+ I/O cards (i.e. Ethernet Switch, MIL-STD-1553 / ARINC 429 interface, Video Encoders/Frame Grabbers, GPS Receivers, discrete I/O, etc.).

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## Specifications



Front View (w/o Removable Media)



Rear View; Conductively Cooled, No Active Cooling Required



Removable CompactFlash Media Option w/Gasketed Cover Plate



Side View (w/ SSD Ejected)

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### LOW POWER X86 PROCESSOR

- Intel® Core 2 Duo Processor L7400
- Core Speed: 1.5 GHz
- Front-Side Bus-Speed: 667 MHz
- L2 Cache: 2048KB Unified
- Intel® 945GM chipset

### RAM MEMORY

2048MB DDR2 666MHz SODIMM 200pin

### SOLID STATE DISK

- Ships with 16GB / 8GB Non-Volatile Industrial CompactFlash, Pre-installed
- Support for up to Two (2) Internal IDE CompactFlash and one (1) SATA 1.8" Solid State Disks (SSD) without Taking up Slots in Card Cage
- eSATA Interface on MIL-C-38999 for External HDD/NAS Storage Device
- Removable CF Storage Media (Behind Sealed Cover on Connector Panel)
- Options: Storage Capacity Upgrades (up to ~32GB CompactFlash / ~128GB 1.8" SATA SSD); 2nd Pre-Installed CompactFlash and/or 1.8" SATA Flash Drive; Other Form Factor PATA/SATA Drives in PC104 Card Cage Slots

### OPERATING SYSTEM

- Pre-installed Linux / Windows Embedded (120-day Eval License) / Windows 7
- Hardware compatible with all x86 embedded and real-time operating systems (Windows XPe, WinCE, Linux, QNX, VxWorks)

### BUS ARCHITECTURE

PCI Bus complying with PCI-104 standard (no ISA)

### NETWORK

- 1x 1000Mbps Gigabit Ethernet Interface
- 1x 100Mbps Fast Ethernet Interface

### SERIAL

2x RS-232 serial ports

### USB

6x USB 2.0 ports

### KEYBOARD/MOUSE

PS/2 Keyboard and Mouse

### AUDIO

AC97 audio set: Line In, Line Out, Microphone

### VIDEO

- 1x VGA Analog Video Output
- 1x LCD Digital Output (LVDS)

### STATUS

Five LED Status/Activity Indicators: One for Power, Four User Definable

### POWER

- 24Vdc Battery / 28Vdc Vehicle Power Input Voltage (18V to 33VDC Continuous)
- Reverse, Over Voltage, 250V spike, 100V Surge-Protected
- MIL-STD-704E, MIL-STD-1275D Compliance
- Power Consumption for Base System: <40W Max
- Add'l Power Available for Expansion Cards: Approx. 35W
- Graceful OS Shutdown Support and Power Switch

### ENVIRONMENTAL

- Designed to Meet MIL-STD-810G (Qualification Testing Pending):
- Operating Temperature: estimated -40° to +71°C / -40° to +160°F (MIL-810G, Methods 501,502)
- Storage Temperature: -50° to +85°C / -58° to 185°F (MIL-810G, Methods 501,502)
- Operating Shock: 40g, 11ms, 3 pos/neg per axis, 18 terminal peak sawtooth pulses (MIL-STD-810G, Method 516)
- Random Vibration: 3 Axes, 1 Hour/Axis (MIL-STD-810G, Method 514, Jet/Helo, Ground Mobile)
- Humidity: Up to 95% RH @ 40C, Non-Condensing (by analysis)

### PHYSICAL

- Dimensions: Chassis - 10.60" (L) x 5.30" (W) x 5.30" (H) with connectors and heatsink; Mounting Plate - 5.30" (L) x 6.45" (W) x 0.375" (H)
- Installation: Flange mount baseplate
- Cooling: Passive Conductive. No Moving Parts
- Weight: <8.0lbs (3.6 kgs)
- Finish: Anodized per MIL-A-8625, Type II, Class 2
- Chassis: Aluminum alloy, corrosion resistant, sealed

### EMI/EMC ISOLATION

- Designed to meet MIL-STD-461E (Qualification Testing Pending):
- CE102, Power Leads, 10 KHz to 10MHz, basic curve
- CS101, Power Leads, 30 Hz to 150 KHz, curve 2 (28V and below)
- RE102, Electric Field, 10 KHz to 18 GHz, figure 3 for fixed wings < than 25 meters
- RS103, Electric Field, 30 MHz to 18 GHz (200V/Meter)

### RELIABILITY

- No Moving Parts. Near Cableless Design
- Mean Time Between Failure (MTBF) per MIL-HDBK-217F @ 25°C / 40°C / 71°C:
  - 131,966 / 74,160 / 17,903 Hours (Ground Benign, Controlled)
  - 33,777 / 25,496 / 10,481 Hours (Ground Mobile)

### WARRANTY

1 Year RTF Warranty (Extended Service Contracts Available)

### STARTER CABLE SET

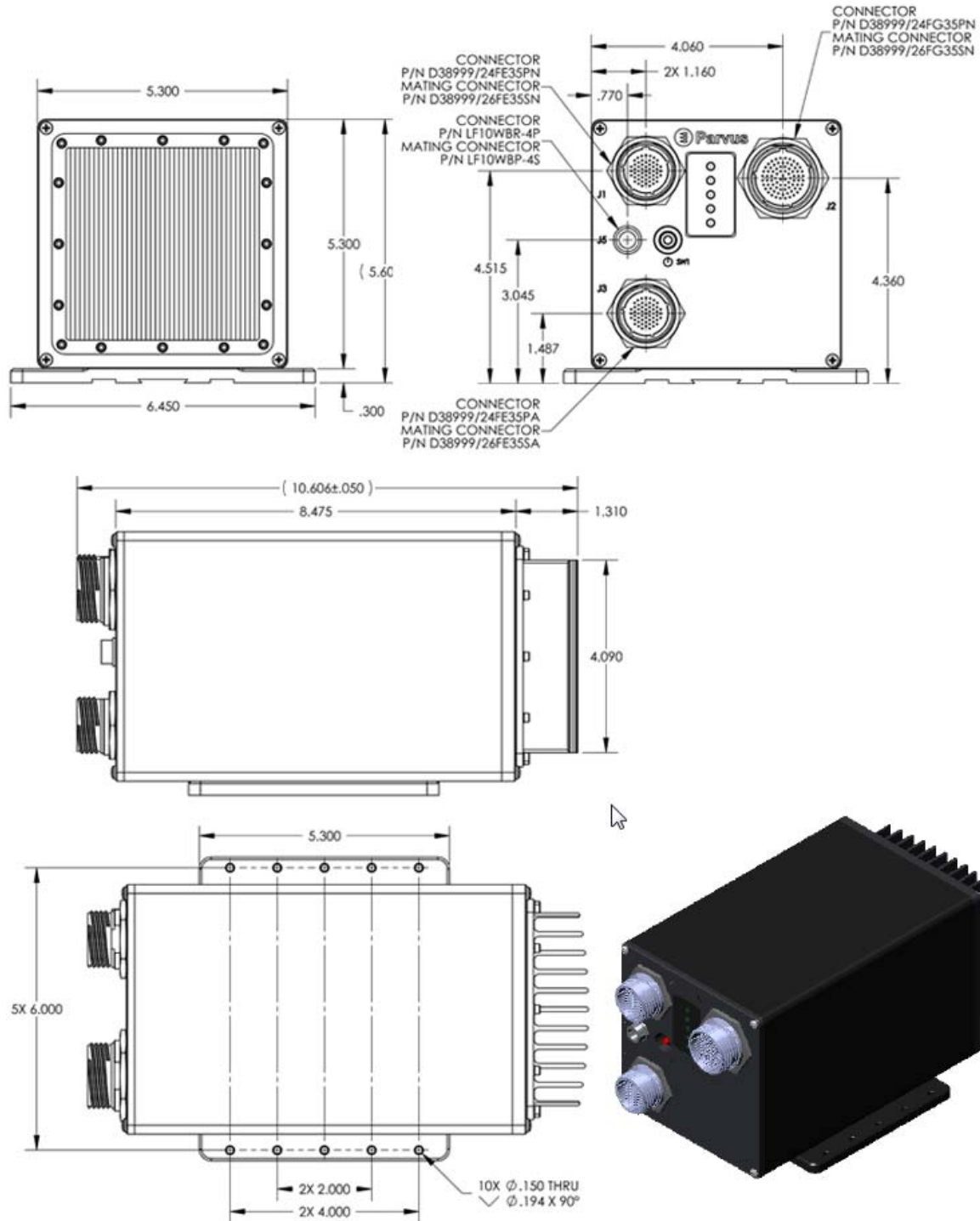
- Starter Cable Set Provides I/O Break-out for CPU I/O (on J1, J3) and Power Input (on J5): Gigabit Ethernet, 10/100 Ethernet, 6 USB, 2 Serial, VGA, LVDS, eSATA, PS2 Keyboard/Mouse, Power Shutdown Switch
- Mates with System MIL-DTL-38999 / IP68 Hirose Connectors to Provide Standard PC-Style Interfaces for Lab or Bench Testing Purposes.

### SPECIAL ORDER OPTIONS

- Breakout Cable for User Defined Expansion I/O (on J2) with Subsystem Integration Projects.
- Pre-installed 2nd CompactFlash and/or 1.8" SATA Flash Drive
- Integrated Data Device Corp (DDC) MIL-STD-1553 Databus Controllers (1 to 4 channels)
- Other Integrated PCI-104 or PC/104+ I/O or Databus Modules
- SSD Storage Capacity Upgrades (up to ~32GB CompactFlash / ~128GB 1.8" SATA SSD)
- 38999 Connector Caps, Mechanical Changes, Custom Metal Finishes
- Program-specific Mil-Certifications / Environmental Testing

# DuraCOR 810-Duo

## Envelope Drawing



All Dimensions are in Inches